CLAIMS

[1] A carbon dioxide adsorption element for adsorbing carbon dioxide contained in air, comprising:

a foil-like or plate-like support member,

a porous aluminum oxide film covering said support member,

amine groups clinging to the inner surface of each pore of said film for carbon dioxide adsorption,

said film being formed by oxidation of aluminum or aluminum alloy, wherein

the depth direction of each pore of said film is the thickness direction of said support member.

[2] The carbon dioxide adsorption element according to claim 1, having a large-diameter pore disposed at the surface and a plurality of small-diameter pores opened in the bottom section of said large-diameter pore as each pore formed in said film.

[3] The carbon dioxide adsorption element according to claim 1 or 2, wherein the inner diameter of the pore surrounded by said amine groups clinging to the inner surface of each pore of said film is 2 nm to 100 nm.

[4] The carbon dioxide adsorption element according to claim 2, wherein the inner diameter of the pore surrounded by said amine groups clinging to the inner surface of said small-diameter pore is 2 nm to 100 nm, and the inner diameter of the pore surrounded by said amine groups clinging to the inner surface of said large-diameter pore is more than 100 nm.

[5] The carbon dioxide adsorption element according to claim 1, wherein said support member is made from aluminum or aluminum alloy, and said film is formed by oxidation of the surface layer of said support member.

[6] The carbon dioxide adsorption element according to claim 1, wherein said support member includes an electric resistance element having electrical conductivity and connected to a power supply unit for resistance heating, and
carbon dioxide adsorbed by said amine groups is released by resistance heating of said electric resistance element.

[7] A carbon dioxide adsorption apparatus comprising:
the carbon dioxide adsorption element according to claim 1,
a coil for generating alternating magnetic flux, and
said support member including an electrically conductive element that has electrical conductivity and is disposed in the position through which the magnetic flux generated by the coil passes, wherein
carbon dioxide adsorbed by said amine groups is released by induction heating of said electrically conductive element.

[8] A method for manufacturing a carbon dioxide adsorption element, comprising the steps of:
forming a foil-like support member made from aluminum or aluminum alloy,
forming a porous film by conducting anodization of the surface layer of said support member, and
causing amine groups for carbon dioxide adsorption to cling to the inner

surface of each pore of said film.

[9] A method for manufacturing a carbon dioxide adsorption element, comprising the steps of:

forming a plate-like support member in which at least the surface layer is made from aluminum or aluminum alloy,

forming a porous film by conducting anodization of the surface layer of said support member, and

causing amine groups for carbon dioxide adsorption to cling to the inner surface of each pore of said film.

[10] A carbon dioxide adsorption element for adsorbing carbon dioxide contained in air, comprising:

a support member,

a porous film covering said support member,

amine groups clinging to the inner surface of each pore of said film for carbon dioxide adsorption, and

said support member including an element that is heated by electric energy, wherein

carbon dioxide adsorbed by said amine groups is released by heating said element.

[11] The carbon dioxide adsorption element according to claim 10, wherein said support member has a foil-like or plate-like form, and the depth direction of each pore of said film is the thickness direction of said support member.

[12] The carbon dioxide adsorption element according to claim 10, wherein said element is an electric resistance element having electrical

conductivity and connected to a power supply unit for resistance heating, and

carbon dioxide adsorbed by said amine groups is released by resistance heating of said electric resistance element.

[13] A carbon dioxide adsorption apparatus comprising:

the carbon dioxide adsorption element according to claim 10,

a coil for generating an alternating magnetic flux, wherein

said element is an electrically conductive element that has electrical conductivity and is disposed in the position through which the magnetic flux generated by the coil passes, and

carbon dioxide adsorbed by said amine groups is released by induction heating of said electrically conductive element.